established several experiment stations, notably the station for plant culture at Brünn, the station for investigations in plant and animal production at Otterbach, and an agricultural physiological station, with divisions of chemistry, physiology and bacteriology, at Prague. In Hungary an experiment station for the analysis and study of wines was established last year at Fiune.

France has established at Nogent-sur-Marne a colonial garden to have administrative control over French colonial stations and botanic gardens in different parts of the world and to furnish these institutions with seeds and plants. During the year œnological stations have been established at Toulouse and Beaune and an agricultural station at Besançon.

In Germany five years of successful work at the Lauchstadt Experimental Farm, which is connected with the agricultural chemical experiment station at Halle, has given so much evidence of the value of experimental farms in connection with experiment stations that there is a movement in that country toward the extension of the so-called 'American system' of field experiments, conducted on a large scale and in a more practical way than has hitherto been customary in that country. Two new stations have been established during the year, a flax-culture station at Sorau and a viticultural experiment station at Weinsberg.

In the West Indies and South America also the claims of agricultural education and research have received much attention. The department of agriculture in the West Indies has established three new stations at Montserrat and one at Tortola, and has conducted several meetings of planters and investigators, at which great interest in the advancement of agriculture was displayed. The Bolivian Government has established an agricultural college at Cochabamba and an agricultural school for Indians at Umala. Brazil has recently established a botanical garden and experimental demonstration field at San Vicente, and the Argentine Republic has decided to establish four experiment stations on the same general plan as those in the United States.

A review of the progress of agricultural research during the year would not be complete without mention of the organization of a department of agriculture, with a small staff of experts, at Bangalore by the government of Mysore, India; the establishment of a dairy station at Gembloux, Belgium; a veterinary pathological institute and animal vaccine institute at Christiania, Norway; and an irrigation experiment station at Calgary, Canada.

A. C. TRUE.

OFFICE OF EXPERIMENT STATIONS,
U. S. DEPARTMENT OF AGRICULTURE.

SCIENTIFIC BOOKS.

Mechanical Drawing. By F. W. BARTLETT, Lieutenant Commander, U. S. Navy. New York, John Wiley & Sons. Pp. viii + 190.

Although this book has been prepared primarily for students of the United States Naval Academy at Annapolis and indicates some of the distinctive features of the course in that institution, it must prove highly serviceable to the general student about to begin drafting. Without including either geometry or descriptive geometry—courses in which are given in another department of the Academy—the author restricts himself to the presentation and application of those practical methods which have commended themselves to the experts of the various departments of construction. The following, from the preface, will indicate the divisions cited: "As general methods differ slightly, the drawings referred to for the general instruction have been those of the Bureau of Steam Engineering of the Navy Department, and the methods of that Bureau have been followed. The special meth-

ods of the Bureau of Ordnance and of the Bureau of Construction are studied and used after the main course is completed."

One hundred and five of the hundred and ninety pages are devoted to a description of the drawing outfit, and to general directions as to its use. This portion alone is, fortunately, worth the cost of the book, for without the sectional models, which are referred to in the later pages and which form so valuable a feature of the Annapolis system, the outside student can hardly derive all the discipline intended from a course based on this work. Preliminary to the work from models two sheets of elementary plane figures are required, the first containing eighteen three-inch squares, filled with straight-line designs only. The second sheet affords about the same amount of practice with compass and irregular curves.

The book is well and practically illustrated, except in the matter of lettering, in which a standard far too low is set for Government work, not comparing at all favorably with that either of the leading bridge and locomotive companies, or of the draftsmen of the Coast and Geodetic Survey. As a whole, the book is a valuable addition to the literature of graphic science, and is likely to prove especially useful to teachers as a reference work.

Frederick N. Willson.

Princeton, N. J.

Preliminary Catalogue of the Crosby-Brown Collection of Musical Instruments of All Nations. I. New York, The Metropolitan Museum of Art, 1901. 8vo. Pp. 94, pl. 12.

This little work deserves a hearty welcome both for what it is and for what it forecasts in the future. All persons interested in tracing human development through the ages should know of this splendid collection of more than 2,500 instruments, nearly all presented by Mrs. John Crosby-Brown; the more one knows of it, the more he will feel the need of interpretation. This need is partly met in the sumptuous volume published in 1888 by Mrs. Brown and her son, Professor William Adams Brown, 'Musical Instruments and Their Homes.' Necessarily the work was mainly a compilation from writers of all degrees of competency, and since its date considerable new matter has become available, especially on the scientific side of the subject.

The present pamphlet has a more modest aim. It is a Catalogue of Gallery 27, which contains the Asiatic instruments. Great care has been taken to get the names properly spelled. The arrangement is first by countries, and then by cases; generally a very few lines of description and the dimensions of the instrument follow each title; there is no musical notation. The page is clear, the matter well displayed, and the proof-reading excellent. A full index of names, native and English, is provided. Twelve fine half-tone plates add much to the value of the book, and furnish beauty and instruction to those who cannot visit the Museum. Two of the plates show the Cristofori piano, the finer of the only two existing instruments made by the inventor of the piano. Of great interest to the student of scales is the half-page view of case 11, showing nearly twenty Japanese flutes with equally spaced holes, and several Pan's-pipes and xylophones that display a rectilinear or symmetrical construction, rather than a conformity to a law of reciprocals like ours. Those who believe there has been a universal desire for a diatonic scale will find it difficult to explain or explain away the facts that confront them in this case.

The future instalments of this catalogue will be awaited with interest; and when it is completed we trust the author's hope may be realized 'to issue an illustrated catalogue in which full justice shall be done to the many features of interest in the collection.' For 'full justice' means a work such as has never been attemped—such a work needs not merely a musician as Fètis or Engel or an instrument maker like Mahillon, but it needs the cooperation of the archeologist and ethnologist, the physicist, the philologist and the psychologist; and if the philosopher and the artist feel that they too have something to add to the understanding of musical instruments and of the men that made and used them, who shall deny the claim? The unprecedented opportunity before the Metropolitan Museum